TITLE: Future Role of Satellite Data in NCEP's Numerical Models

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In order to discuss the future role of satellite data in NCEP's operational model, we must first understand and appreciate how far we have come in the use of satellite data in the current operational models, and also appreciate the enormity of the challenges we face as we approach the NPOESS and GIFTS era. In this presentation: I) The past 30 year effort to assimilate satellite data into NCEP's models will be briefly reviewed to remind everyone of the lessons learned, especially as they relate to the need for the three major components: satellite instruments, computer resources and advanced data assimilation systems to secure the desired positive impact in numerical models. II) The current status of satellite data assimilation at NCEP will be briefly reviewed focusing on recent accomplishments related to the ingestion of GOES, QUIKSCAT and TRMM data into the NCEP models and the role of the recently created NASA/NOAA Joint Center for Satellite Data Assimilation (JCSDA) in these accomplishments. The operational modeling community has crossed the threshold from "if" they should use satellite data to the absolute necessity of using all available operational and research satellite data in order to make accurate and reliable numerical weather forecasts. III) The current and future challenges associated with satellite data assimilation will be reviewed with specific references to 1) the huge increase in the amount of data that is currently (and will continue) confronting the model community over the next 8 to 10 years, 2) the need to accelerate the research and operational satellite assessments within the operational modeling systems, and 3) the use of satellite based atmosphere, ocean and land data sets for weather and climate forecast applications using a unified community global forecast system accessible to a wide range of researchers and operational meteorologists alike. IV) A vision for the future will then be presented, based a community global model and associated data assimilation system operating within the JCSDA which accounts for the increasing use of LEO and GEO data as we approach the NPOESS era and revolutionary breakthroughs anticipated with the launch of the GIFTS and subsequent geostationary Advanced Baseline Sounders.